

# **Federal Aviation Administration Civil Aerospace Medical Institute Oklahoma City, OK**

## **Procedures for Collecting and Shipping Toxicology Specimens**

### **Introduction**

- For aircraft accident investigations, specimens collected from accident victims are submitted to the Federal Aviation Administration's (FAA's) Civil Aerospace Medical Institute (CAMI) for toxicological examination. The submission of specimens is authorized by the National Transportation Safety Board (NTSB) and coordinated through the FAA Office of Accident Investigation. The final decision on the submittal of specimens is made by the NTSB.
- Normally, only specimens from aircraft crew members are submitted. Such specimens are typically analyzed for the presence of carboxyhemoglobin, blood cyanide, alcohol, and drugs. In accidents involving a fire, blood specimens from passengers should be submitted for the analysis of carboxyhemoglobin and blood cyanide.
- It is critical that the anatomical collection site(s) of the submitted blood samples be indicated on tube(s). This information is necessary for the correct interpretation of analytical findings.
- Please use the provided water-resistant and permanent marking pen for filling labels.
- If the desired amounts of specimens mentioned below are not available, please send what is available.

### **Specimen Types and Amounts**

#### **STEP 1      WHOLE BLOOD SPECIMENS (GRAY-TOPPED TUBES)**

Using the provided needle withdraw blood specimens and fill the tubes to the maximum volume.

Note: Immediately after the blood collection, assure proper mixing of the preservative and anticoagulant by slowly inverting the blood tubes at least five times. Do not shake vigorously!

After completing the requested information on the labels of the tubes, including the anatomical site(s) from which the blood sample(s) were collected, return them to their original Styrofoam container. Then, complete the requested information on the label of the container. Replace rubber band to secure the container.

## STEP 2 WHOLE BLOOD SPECIMENS (GREEN-TOPPED TUBES)

Using the provided needle withdraw blood specimens and fill the tubes to the maximum volume.

Note: Immediately after the blood collection, assure proper mixing of the anticoagulant by slowly inverting the blood tubes at least five times. Do not shake vigorously!

After completing the requested information on the labels of the tubes, including the anatomical site(s) from which the blood sample(s) were collected, return them to their original Styrofoam container. Then, complete the requested information on the label of the container. Replace rubber band to secure the container.

## STEP 3 VITREOUS HUMOR, SPINAL FLUID, AND BILE (RED-TOPPED TUBES)

Using the provided needles, collect available vitreous humor, spinal fluid, and bile. Place the individual sample types in the provided tubes and label them accordingly. After the collection, return the tubes to the original Styrofoam container, and then fill the requested information on the label. Replace rubber band to secure the container.

## STEP 4 URINE

Collect approximately 100 ml of urine in a plastic bottle. Fill the requested information on one of the provided bottle labels and mark the "URINE" box on the label. Then, remove the backing from the label and affix it to the side of the bottle.

## STEP 5 GASTRIC CONTENTS

Collect approximately 100 grams of gastric contents in a plastic bottle. Fill the requested information on one of the provided bottle labels and mark the "GASTRIC" box on the label. Then, remove the backing from the label and affix it to the side of the bottle.

## STEP 6 LIVER

Fill the requested information on one of the provided bag labels, mark the "LIVER" box on the label, remove the backing from the label, and affix it to one of the Whirl-Pak bags. Then, collect approximately 300 grams of liver in this labeled Whirl-Pak bag. Close and seal the Whirl-Pak bag and then place it inside a provided Ziplock bag. Squeeze out all excess air from the Ziplock bag and seal it.

## STEP 7 KIDNEY

Fill the requested information on one of the provided bag labels, mark the "KIDNEY" box on the label, remove the backing from the label, and affix it to one of the Whirl-Pak bags. Then, collect approximately 200 grams of kidney in this labeled Whirl-Pak bag. Close and seal the Whirl-Pak bag and then place it inside a provided Ziplock bag. Squeeze out all excess air from the Ziplock bag and seal it.

**STEP 8      HEART**

Fill the requested information on one of the provided bag labels, mark the "HEART" box on the label, remove the backing from the label, and affix it to one of the Whirl-Pak bags. Then, collect approximately 100 grams of heart in this labeled Whirl-Pak bag. Close and seal the Whirl-Pak bag and then place it inside a provided Ziplock bag. Squeeze out all excess air from the Ziplock bag and seal it.

**STEP 9      LUNG**

Fill the requested information on one of the provided bag labels, mark the "LUNG" box on the label, remove the backing from the label, and affix it to one of the Whirl-Pak bags. Then, collect approximately 200 grams of lung in this labeled Whirl-Pak bag. Close and seal the Whirl-Pak bag and then place it inside a provided Ziplock bag. Squeeze out all excess air from the Ziplock bag and seal it.

**STEP 10     SPLEEN**

Fill the requested information on one of the provided bag labels, mark the "SPLEEN" box on the label, remove the backing from the label, and affix it to one of the Whirl-Pak bags. Then, collect approximately 200 grams of spleen in this labeled Whirl-Pak bag. Close and seal the Whirl-Pak bag and then place it inside a provided Ziplock bag. Squeeze out all excess air from the Ziplock bag and seal it.

**STEP 11     BRAIN**

Fill the requested information on one of the provided bag labels, mark the "BRAIN" box on the label, remove the backing from the label, and affix it to one of the Whirl-Pak bags. Then, collect approximately 200 grams of brain in this labeled Whirl-Pak bag. Close and seal the Whirl-Pak bag and then place it inside a provided Ziplock bag. Squeeze out all excess air from the Ziplock bag and seal it.

**STEP 12     MUSCLE**

Fill the requested information on one of the provided bag labels, mark the "MUSCLE" box on the label, remove the backing from the label, and affix it to one of the Whirl-Pak bags. Then, collect approximately 200 grams of muscle in this labeled Whirl-Pak bag. Close and seal the Whirl-Pak bag and then place it

inside a provided Ziplock bag. Squeeze out all excess air from the Ziplock bag and seal it.

#### STEP 13 CHAIN OF CUSTODY AND ACCIDENT INFORMATION FORM (TWO PAGES)

Current electronic chain of custody forms are available on line at <http://www.faa.gov/go/toxlab>. Provide all requested information.

### TOX-BOX Packing

1. Please be sure that:
  - a. Labels are properly completed and affixed to the respective containers.
  - b. Both pages of the Chain of Custody and Accident Information form have been completed.
  - c. Ice packs and specimens are frozen prior to shipping (Refrigerate blood, do not freeze).
2. Unfold and open the provided black bag, making sure the absorbent material is on bottom of the bag.
3. Place the black bag with absorbent material inside the TOX-BOX.
4. Place all specimens and ice packs into the black bag.
5. Seal the black bag by twisting the top of the bag and then wrapping black tape around it.
6. Date and initial the provided SECURITY SEAL. Peel the security label from its backing and place the seal around the black tape on the bag in such a way that the two ends of the security seal adhere together.

### TOX-BOX Shipment Notification

1. Prior to the shipment of the specimens, **call** CAMI at (405) 954-4866 to obtain the bill to FedEx account number.
2. The working hours are 0800-1630 hours Central Time Zone (Monday – Friday, excluding Federal Holidays).
3. Direct emergency calls can be made to (405) 954-3793 during non-working hours.
4. The shipment address is:

FAA Civil Aerospace Medical Institute, Room 351  
6500 South MacArthur Boulevard  
Oklahoma City, OK 73169

